

1. Periodic Building Unit – 2. Connection mode – 3. Projections of the unit cell content  
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## 1. Periodic Building Unit:

Finite building units of 12 T atoms are composed of two 5-1 units (bold in Figure 1(a)). The two-dimensional Periodic Building Unit (PerBU) is obtained when these T12-units, related by pure translations along  $b$  and  $c$ , are connected into a layer with a rectangular repeat unit (Figure 1(b)). Infinite zigzag chains along  $c$  (repeat distance:  $2 \times 5.2 \text{ \AA}$ ) and infinite saw chains along  $b$  (repeat distance:  $7.5 \text{ \AA}$ ) are formed. A sheet of (fused) 6-ring boats with dimer “handles” is generated as shown in Figure 1(c). [Compare this PerBU with the PerBUs in **EPI** and **MOR**]

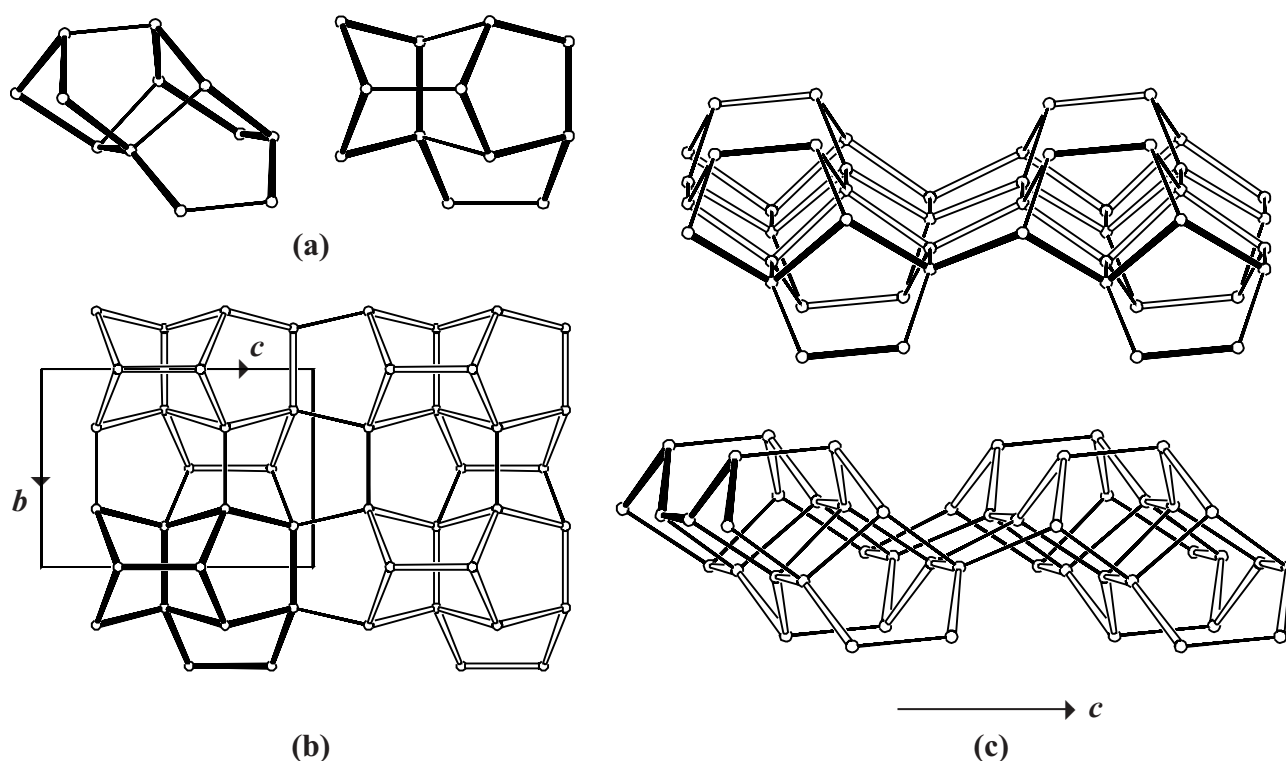


Figure 1. (a): T12-unit composed of two 5-1 units (see **Alternative description**) viewed along  $b$  (left) and along  $a$  (right); (b): parallel projection of the PerBU along  $a$  (one T12-unit in bold). (c): Perspective view along  $b$  of the PerBU (a 6-ring sheet with dimer “handles”). Top: PerBU built from zigzag chains (one zigzag chain and two dimers in bold). Bottom: PerBU built from saw chains (one saw chain in bold). [See **Supplementary information**]

## 2. Connection mode:

Neighboring PerBUs, related by a lateral shift of  $\frac{1}{2}b$ , are connected along  $a$  as shown in Figure 2 on next page. Sheets of (fused) 6-ring boats are connected through 4-rings.

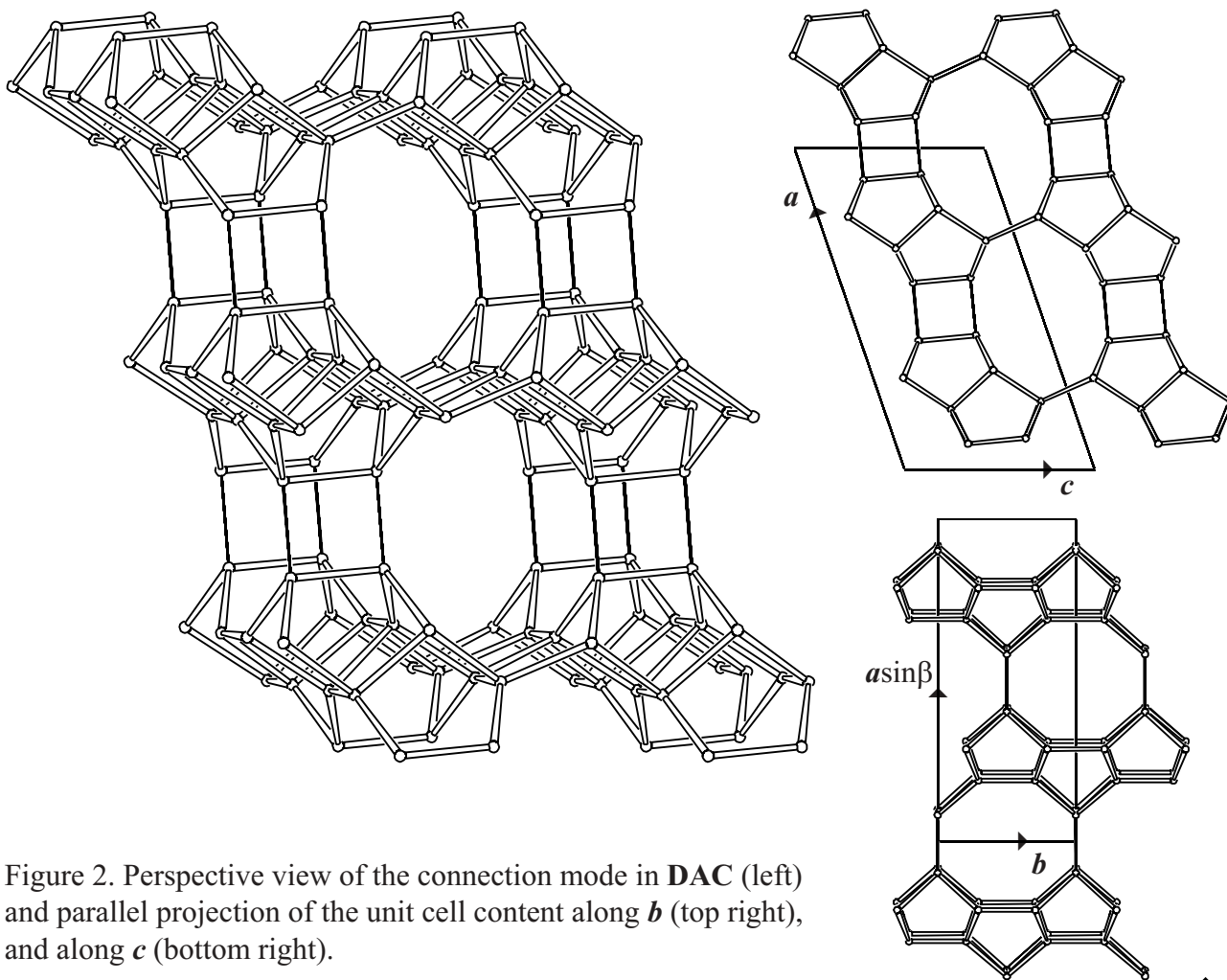


Figure 2. Perspective view of the connection mode in **DAC** (left) and parallel projection of the unit cell content along  $b$  (top right), and along  $c$  (bottom right).

**3. Projections of the unit cell content:** See Figure 2.

**4. Channels and/or cages:**

Interconnecting one-dimensional channel systems in **DAC** are parallel to  $b$  and  $c$ . The intersection of channels, topologically equivalent to the intersection in **FER**, is illustrated in Figure 3. The **pore descriptor** is added. The cavity that connects the channel intersections along  $b$  is also shown in Figure 3. The connection of channel intersections is depicted in Figure 4.

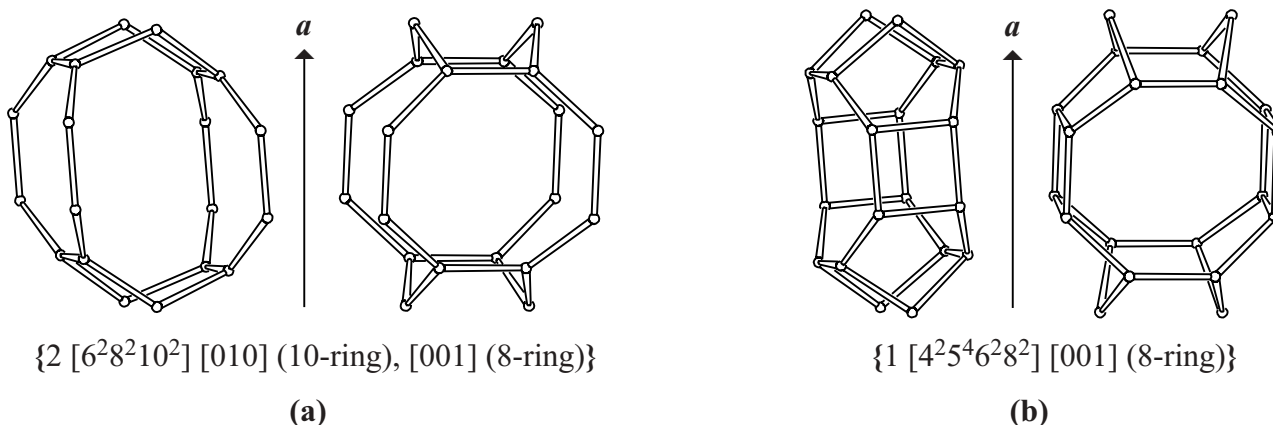


Figure 3. Channel intersection **(a)** and connecting cavity **(b)** viewed along  $b$  (left) and along  $c$  (right).

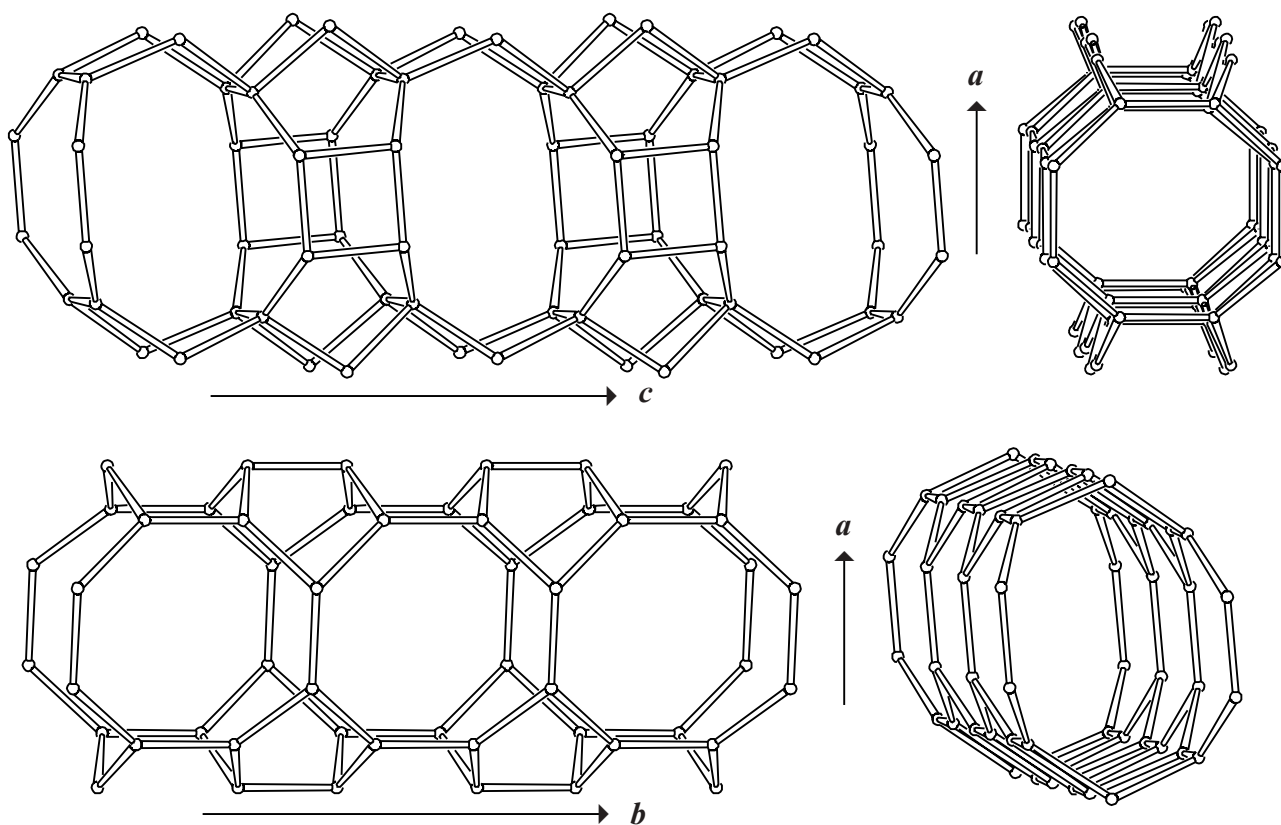


Figure 4. Fusion of channel intersections. Top: 10-Ring channels, parallel to  $b$ , are interconnected along  $c$  through 4-, 5- and 6-rings (the interconnecting cavity) that are part of the wall of an 8-ring channel parallel to  $c$ . Fused channel intersections seen along  $b$  (left), and along  $c$  (right). Bottom: fusion of channel intersections along  $b$  seen along  $c$  (left), and along  $b$  (right). ▲

## 5. Supplementary information:

### *Other framework types containing zigzag chains*

In several framework types at least one of the unit cell dimensions is about  $n \cdot 5.2 \text{ \AA}$  (where  $n = 1, 2, 3 \dots$  etc.). In many cases this indicates the presence of zigzag chains.

In the [INTRO](#) pages links are given to detailed descriptions of these framework types (choose: **Zigzag chains**). There is also a link to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix; Figure 1**).

### *Other framework types containing saw chains*

In several framework types at least one of the unit cell dimensions is about  $n \cdot 7.5 \text{ \AA}$  (where  $n = 1, 2, 3 \dots$  etc.). In many cases this indicates the presence of saw chains.

In the [INTRO](#) pages links are given to descriptions of other framework types containing (twisted) saw chains (choose: **Saw chains**). There is also a link provided to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix; Figure 2**).

### *Alternative description using (modified) 5-rings*

Several framework types, like **DAC**, can be constructed using (modified) 5-rings.

In the [INTRO](#) pages links are given to detailed descriptions of these framework types (choose: **5-Rings**). There is also a link provided to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix; Figure 6**). ▲